

# Characterizing the pressure sensor

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 An abbreviated version of this protocol was published in Science Advances in Dec 2020

Wireless, skin-interfaced sensors for compression therapy

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## Detailed protocol

### Characterizing the pressure sensor

The setup for characterizing the pressure sensor includes a dynamic mechanical analysis (DMA; RSA-G2 Solids Analyzer, TA Instruments) to apply and measure the normal force, a digital multimeter (NI-USB 4065 Digital Multimeter) to measure the resistance of the sensor. The measured change in resistance is calibrated with a corresponding applied force. Figure 3A in a publication shows results of tests of linearity, where the pressure follows from forces applied over controlled areas. Figure S8 shows optical images of the experimental set-up.

### Characterizing the temperature sensor

The set-up for characterizing the temperature sensor includes a hotplate for controlling the temperature of the sensor and IR camera (FLIR) for measuring temperature as a standard. The device placed on the hotplate and heating to 42°C, and then cooling to room temperature with simultaneous measurement using SCV(our sensor) and IR camera. The measured ADC value from SCV is calibrated with a corresponding measurement using IR camera. Figure 3D shows results of characterization of the temperature sensor.

**How to cite:** (Readers should cite both the Bio-protocol preprint and the original research article where this protocol was used)

1. Park, Y. and Rogers, J. (2021). Characterizing the pressure sensor. Bio-protocol Preprint. [bio-protocol.org/rep1031](https://bio-protocol.org/rep1031).
2. Park, Y., Kwon, K., Kwak, S. S., Yang, D. S., Kwak, J. W., Luan, H., Chung, T. S., Chun, K. S., Kim, J. U., Jang, H., Ryu, H., Jeong, H., Won, S. M., Kang, Y. J., Zhang, M., Pontes, D., Kampmeier, B. R., Seo, S. H., Zhao, J., Jung, I., Huang, Y., Xu, S. and Rogers, J. A. (2020). Wireless, skin-interfaced sensors for compression therapy. Science Advances 6(49). DOI: [10.1126/sciadv.abe1655](https://doi.org/10.1126/sciadv.abe1655)

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